

# A Rough, Tough Forage for Rangeland Cattle

**F**orage kochia (*Kochia prostrata*) is a shrubby Asian native that has found a new home on western U.S. rangelands. And although it is not invasive, it is still sometimes more resilient than the North American native plants.

“In some rangeland soils, it’s difficult to successfully reseed with native plants,” says geneticist Blair Waldron, who works at the Agricultural Research Service’s Forage and Range Research Laboratory in Logan, Utah. “But we’ve shown that forage kochia can be established to enhance rangelands and compete with cheatgrass successfully. It can even protect against wildfires. Some people said that livestock won’t eat it, but we’ve found that cows will graze kochia—and that they even prefer it over lupine, which can be toxic to pregnant cattle.”

Waldron and his research partners have published findings that give ranchers even more reason to like the forage perennial. Their work compared how well cattle fared after two seasons of spending the fall and winter grazing on either kochia-dominated rangelands or grass-dominated rangelands.

“Winter feeding can account for 50 to 70 percent of a producer’s annual costs, so we wanted to see whether ranchers could save on

annual feed costs if their cattle have suitable rangeland plants to graze in the fall,” Waldron says.

The scientists investigated fall/winter rangeland forage yields, rangeland carrying capacities, nutritive values, and the livestock performance of cattle that grazed on both types of rangeland from late October until the following January. The commercial-scale, on-farm trials were funded in part with a grant from the Western Sustainable Agriculture Research and Education Program and were conducted in Tooele County, Utah, in cooperation with the Grantsville Soil Conservation District and the Darrell Johnson Ranch in Rush Valley.

After calculating the appropriate stocking rate, Waldron and his partners stocked each site mainly with Black Angus cattle and ran field trials in 2007 and 2008. The scientists found that the forage yield on rangelands seeded with kochia was 2,309 pounds per acre, which was 6 times greater than the forage yield on traditional grazinglands. This difference meant that the rangelands with kochia could support 1.38 animals per acre, while the traditional rangelands could support only 0.24 animals per acre. The experimental

forage had a crude protein content of 11.7 percent—well above the recommended

minimum—while the stockpiled grasses had a crude protein content of only 3.1 percent, which was below the recommended minimum.

Waldron says this work shows that forage kochia can improve sustainable livestock production in the western United States by increasing rangeland carrying capacity and forage nutritive value.

“Now we’re using kochia varieties we collected from Uzbekistan and Kazakhstan to develop new cultivars that grow taller and have thicker stems, so they’ll be more accessible to cattle and wildlife in snow,” Waldron says. “We’re hoping to release an improved variety of kochia later this year.”—By Ann Perry, ARS.

*This research is part of Pasture, Forage, and Rangeland Systems (#215) and Plant Genetic Resources, Genomics, and Genetic Improvement (#301), two ARS national programs described at [www.nps.ars.usda.gov](http://www.nps.ars.usda.gov).*

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Angus cows grazing on grass and forage kochia in Utah. Ranchers in the Intermountain West can reduce feeding costs by grazing their animals on forage kochia in fall and winter.

